

10/30/03

Sheet 1 of 7

FORM PTO 1449 (modified)

U.S. DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICELIST OF REFERENCES CITED BY APPLICANT(S)  
(Use several sheets if necessary)

Date Submitted to PTO: October 30, 2003

ATTY DOCKET NO.  
2003\_1578SERIAL NO.  
NEW

101695,780

APPLICANT  
Mitsuaki OSHIMAFILING DATE  
October 30, 2003

GROUP 2611

## U.S. PATENT DOCUMENTS

*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
PP	AA	5,311,550	5-10-94	Fouche et al.			
PP	AB	4,630,287	12-16-86	Armstrong			
PP	AC	4,271,527	6-2-81	Armstrong			
PP	AD	5,050,188	9-17-91	Dirr			
PP	AE	5,398,073	3-14-95	Wei			
PP	AF	5,452,015	9-19-95	Hulyalkar			
PP	AG	5,565,932	10-15-96	Citta et al.			
PP	AH	5,481,412	1-2-96	Bannai et al.			
PP	AI	3,909,721	9-30-75	Bussgang et al.			

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO	
PP	AJ	0365431	4-25-90	EP				X
	AK	<del>0485105</del>	<del>6-13-92</del>	<del>EP</del>			X	
PP	AL	92/14343	8-20-92	WO			X	
PP	AM	89/08366	9-8-89	WO			X	
	AN	<del>0031193</del>	<del>7-1-84</del>	<del>EP</del>			X	

## OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)

	AO	Shinji Matsumoto et al., "200 Mb/s 16 QAM Digital Radio-Relay System Operating in 4 and 5 GHz Bands", Japan Telecommunications Review, January 1982, vol. 24, no. 1, pages 66-73.
	AP	M. Peet et al., "Compatible Coding of Television Images, Part 2: Compatible System", Signal Processing, Image Communication, October 2, 1990, no. 3, pages 259-268.
	AQ	Mitsuaki Oshima, "Constellation-Code Division Multiplex for Digital HDTV", IEEE, 1992, pages 1086-1092.

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DATE CONSIDERED

9/11/07

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include cop. this form with next communication to applicant.

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## U.S. PATENT DOCUMENTS

*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
PP	AA	4,227,152	10-7-80	Godard et al.			
PP	AB	4,525,846	6-25-85	Bremer et al.			
PP	AC	4,751,478	6-14-88	Yoshida			
PP	AD	4,891,806	1-2-90	Farias et al.			
PP	AE	4,903,125	2-20-90	Parker			
PP	AF	4,937,844	6-26-90	Kao			
PP	AG	5,164,963	11-17-92	Lawrence et al.			
PP	AH	5,555,275	9-1996	Oshima			
PP	AI	5,565,926	10-15-96	Bryan et al.			

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO	
	AJ	<del>0311188</del>	<del>4-12-89</del>	<del>EP</del>			*	
	AK	<del>0329158</del>	<del>8-23-89</del>	<del>EP</del>			*	
	AL	<del>64-5136</del>	<del>1-10-89</del>	<del>JP</del>			*	
	AM	<del>63-28145</del>	<del>2-5-88</del>	<del>JP</del>			*	
	AN	<del>62-133642</del>	<del>8-17-87</del>	<del>JP</del>			*	

## OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)

	AO	Tricia Hill et al., "A Performance Study of NLG 64-State QAM", IEEE Transactions on Communications, vol. COM-31, June 1983, no. 6, pages 821-826.
	AP	Hideki Ishio et al., "A Proposal of a Carrier Digital Transmission System Using Multi-Level APSK", pages 1-29.
	AQ	Shanmugam, "Digital and Analog Communication Systems" 1979, p. 272.

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*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
PP	AA	5,105,442	4-14-92	Wei			
PP	AB	4,048,572	9-13-77	Dogliotti et al.			
PP	AC	5,282,019	1-25-94	Basile et al.			
PP	AD	5,311,547	5-10-94	Wei			
PP	AE	5,267,021	11-30-93	Ramchandran et al.			
PP	AF	5,038,219	8-6-91	Yamashita et al.			
PP	AG	5,087,975	2-11-92	Citta et al.			
PP	AH	5,086,340	2-4-92	Citta et al.			
PP	AI	5,243,629	9-7-93	Wei			

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO
	AJ	62-137657	12-1-78	JP			* *
	AK	0282298	9-14-88	Europe			* *
	AL	0392538	10-17-90	Europe			* *
	AM	0490552	6-17-92	Europe			* *
PP	AN	0506400	9-30-92	Europe			X

## OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)

	AO	Khaled Fazel et al., Combined multilevel coding and multiresolution modulation, February 8, 1993, Pages 1081-1085.
PP	AP	P. Hoehner et al., Performance of an RCPC-Coded OFDM-based Digital Audio Broadcasting (DAB) System, IEEE Global Telecommunications Conference "Globecom '91", December 2-5, 1991, Vol. 1 of 3, Pages 2.1.1 - 2.1.7
	AQ	K. M. Uz et al., Combined multiresolution source coding and modulation for digital broadcast of HDTV, 1992, Pages 283-292

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EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
PP	AA	5,142,353	8-25-92	Kageyama et al.			
PP	AB	5,197,061	3-23-93	Halbert-Lassalle et al.			
PP	AC	5,291,289	3-1-94	Hulyalkar et al.			
PP	AD	5,166,924	11-24-92	Moose			
PP	AE	4,940,954	7-10-90	Aubert et al.			
PP	AF	5,128,758	7-7-92	Azadegan et al.			
PP	AG	5,038,402	8-6-91	Robbins			
PP	AH	5,638,112	6-10-97	Bestler et al.			

## FOREIGN PATENT DOCUMENTS

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PP	AI	0448492A1	9-25-91	Europe				X
PP	AJ	0485108A2	5-13-92	Europe			X	
	AK	<del>0625641A2</del>	<del>2-3-93</del>	<del>Europe</del>			<del>X</del>	
	AL	<del>0640231A2</del>	<del>5-5-93</del>	<del>Europe</del>			<del>X</del>	
PP	AM	0531046A2	3-10-93	Europe			X	

## OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)

PP	AN	K. M. Uz et al., Multiresolution Source and Channel Coding for Digital Broadcast of HDTV, 1992, Pages 61-69.
	AO	Nambi Seshadri et al., Multi-Level Block Coded Modulations with Unequal Error Protection for the Rayleigh Fading Channel, Vol. 4, No. 3, May-June 1993, Pages 325-334.
PP	AP	William F. Schreiber, Spread-Spectrum Television Broadcasting, SMPTE Journal, August 1992, Pages 538-549.

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EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
pf	AA	5,063,445	11-5-91	Nishizawa et al.			
pf	AB	5,819,000	10-6-98	Oshima			
pf	AC	5,999,569	12-7-99	Oshima			
pf	AD	5,892,879	4-6-99	Oshima			

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO
	AE	7-99522	4-11-96	Japan			abstract
	AF	7-79445	3-20-95	Japan			abstract
	AG	5-75568	3-20-93	Japan			abstract
pf	AH	86-07223	12-4-86	WO			X
pf	AI	2 187 611	9-9-87	Great Britain			X
	AJ	85/04541	10-10-85	WO			X
	AK	04-196022	7-16-92	Japan			abstract
	AL	2-166979	6-27-90	Japan			abstract
	AM	64-74836	3-20-89	Japan			abstract
	AN	53-108215	9-20-78	Japan			abstract

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	AO	Martin Vetterli et al., Multiresolution Coding Techniques for Digital Television: A Review, Multidimensional Systems and Signal Processing, Volume 3, May 1992, Pages 161-167.
	AP	Ezio Biglieri et al., Introduction to Trellis-Coded Modulation with Applications, April 6, 1992, Pages 175-207.
	AQ	English Language Abstract of European Patent No. 93 30 7575.

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*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
PP	AA	4,636,876	1-13-87	Schwartz			
PP	AB	4,855,692	8-8-89	Kennard et al.			
PP	AC	4,873,701	10-10-89	Tretter			
PP	AD	4,958,360	9-18-90	Sari			
PP	AE	5,115,453	5-19-92	Calderbank et al.			
PP	AF	5,168,509	12-1-92	Nakamura et al.			
PP	AG	5,600,672	2-4-97	Oshima et al.			
PP	AH	6,049,651	4-11-00	Oshima			
PP	AI	6,256,357	7-3-01	Oshima			

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		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO
	AJ	0122805	10-24-84	EP			X
	AK	63-180280	7-25-88	JP			abstract
	AL	64-68144	3-14-89	Japan			abstract
PP	AM	5-218978	8-27-93	Japan			X
PP	AN	3-69295	3-25-91	Japan			X

## OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)

	AO	Kazuhiko Nitadori, Synthesis of Multichannel Orthogonal VSB Signals by Quadrature Method, 1976 International Conference on Communications, June 14-16, 1976, Volume 1, Pages 3-25-3-29.
	AP	Thomas M. Cover, Broadcast Channels, IEEE Transactions on Information Theory, January 1972, Pages 2-14.
	AQ	"Optimum Weighted PCM for Speech Signals", Sundberg, IEEE Transactions on Communications, Volume COM-26, No. 6, June 1978, Pages 872-884.

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## U.S. PATENT DOCUMENTS

*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
PP	AA	5,170,413	12-8-92	Hess et al.			
	AB						
	AC						

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO
	AD	57-39629	3-4-82	Japan			abstract
	AE	58-101547	9-26-83	Japan			abstract
	AF	63-180222	7-25-88	Japan			abstract
PP	AG	92/22162	12-10-92	WO			X
	AH	2-94814	4-5-90	Japan			abstract
	AI	61-70861	4-11-86	Japan			abstract
	AJ	2-218279	8-30-90	Japan			abstract
	AK	2,095,435	5-10-92	Canada			X
PP	AL	91/20137	12-26-91	WO			X
PP	AM	2-141049	5-30-90	Japan			X
	AN	2-195732	8-2-90	Japan			abstract
	AO	5-167833	7-2-93	Japan			abstract
PP	AP	2-260726	10-23-90	Japan			X
	AQ	58-161427	9-26-83	Japan			abstract

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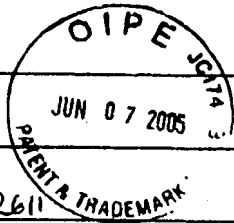
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Sheet 1 of 2		INFORMATION DISCLOSURE STATEMENT					
FORM PTO 1449 (modified)  U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE  LIST OF REFERENCES CITED BY APPLICANT(S) (Use several sheets if necessary)  Date Submitted to PTO: June 7, 2005			ATTY DOCKET NO. 2003_1578		SERIAL NO. 10/695,780		
			APPLICANT Mitsuaki OSHIMA				
			FILING DATE October 30, 2003		GROUP 283T 2611		
U.S. PATENT DOCUMENTS							
*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
PP	AA	3,824,548	7-16-74	Sullivan et al.			
PP	AB	3,959,726	5-25-76	Hinoshita et al.			
PP	AC	4,303,939	12-1-81	Stephens et al.			
PP	AD	4,303,941	12-1-81	Marti et al.			
PP	AE	4,309,726	1-5-82	Tanaka et al.			
PP	AF	4,535,352	8-85	Haskell			
PP	AG	4,564,858	1-14-86	Resch			
PP	AH	4,581,639	4-8-86	Judge			
PP	AI	4,769,819	9-6-88	Matsutani et al.			
PP	AJ	4,794,447	12-27-88	Tsinberg			
PP	AK	4,800,426	1-24-89	Glenn			
PP	AL	4,817,192	3-28-89	Phillips et al.			
PP	AM	5,007,088	4-9-91	Ooi et al.			
PP	AN	5,029,003	7-91	Jonnalagadda			
PP	AO	5,134,464	7-28-92	Basile et al.			
FOREIGN PATENT DOCUMENTS							
		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO
PP	AP	5-327807	12-10-93	Japan			abstract
OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)							
AQ	Masafumi SAITO et al., "Bit Error Rate Characteristics of OFDM in Multipath Environment", 1991						
AR	Ryutaro OHMOTO et al., "π/4-shift QPSK Subcarrier Transmission", 1991						
EXAMINER				DATE CONSIDERED			
Phung Phun				9/11/07			

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Sheet 2 of 2		INFORMATION DISCLOSURE STATEMENT					
FORM PTO 1449 (modified)  U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE  LIST OF REFERENCES CITED BY APPLICANT(S) (Use several sheets if necessary)  Date Submitted to PTO: June 7, 2005				ATTY DOCKET NO. 2003_1578		SERIAL NO. 10/695,780	
				APPLICANT Mitsuaki OSHIMA			
				FILING DATE October 30, 2003		GROUP 2634 26 11	
U.S. PATENT DOCUMENTS							
*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
PP	AA	5,181,112	1-19-93	Citta et al.	/	/	
PP	AB	5,377,051	12-27-94	Lane et al.			
PP	AC	5,400,084	3-21-95	Scarpa			
PP	AD	5,576,902	11-19-96	Lane et al.			
PP	AE	5,218,622	6-8-93	Fazel et al.			
PP	AF	5,561,468	10-1-96	Bryan et al.			
PP	AG	5,598,220	1-97	Citta et al.			
PP	AH	5,802,241	9-1-98	Oshima			
PP	AI	5,214,656	5-25-93	Chung et al.			
FOREIGN PATENT DOCUMENTS							
		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO
PP	AJ	7-264148	10-13-95	Japan	/	/	abstract
PP	AK	7-322219	12-8-95	Japan			abstract
PP	AL	3-48587	3-1-91	Japan			abstract
	AM						
	AN						
OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)							
PP	AO	J. A. C. Bingham, "Multicarrier Modulation for Data Transmission: An Idea Whose Time Has Come", IEEE Communications Magazine, Vol. 28, May 1990, pages 5-8 and 11-14					
PP	AP	B. Hirosaki, "An Orthogonally Multiplexed QAM System Using the Discrete Fourier Transform", IEEE Transactions on Communications, Vol. Com-29, No. 7, July 1981, pages 982-989					
PP	AQ	L. J. Cimini, Jr., "Analysis and Simulation of a Digital Mobile Channel Using Orthogonal Frequency Division Multiplexing", IEEE Transactions on Communications, Vol. Com-33, No. 7, July 1985, pages 665-675 and Annex					
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U.S. DEPARTMENT OF COMMERCE  
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Date Submitted to PTO: July 22, 2004

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Mitsuaki OSHIMAFILING DATE  
October 30, 2003

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## U.S. PATENT DOCUMENTS

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	AA						
	AB						
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	AD						
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	AG						
	AH						
	AI						

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO
PP	AJ	2-154583	6-13-90	Japan			abstract
	AK						
	AL						
	AM						
	AN						

## OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)

PP	AO	Shigeki MORIYAMA et al., "Delay Propagation Characteristics at VHF and UHF bands in Urban Area", 1991 Spring National Convention Record, The Institute of Electronics, Information and Communication Engineers, Part 2, p. 406, March 15, 1991
PP	AP	Yasuhiro ITO et al., "Adaptive Weighted Code Division Multiplexing (AW-CDM) Transmission System for Terrestrial Digital Television Broadcasting", ITE Technical Report Vol. 17, No. 13, pp 27-32, February 25, 1993
	AQ	

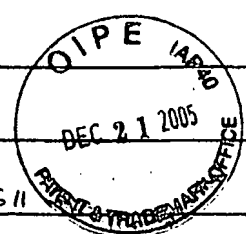
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				APPLICANT Mitsuaki OSHIMA			
				FILING DATE October 30, 2003			
U.S. PATENT DOCUMENTS							
*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
PP	AA	4,597,090	6-24-86	Forney, Jr.			
PP	AB	4,077,021	2-28-78	Csajka et al.			
PP	AC	2005/0084750	4-21-05	Wang et al.			
PP	AD	2005/0058633	3-17-05	Epstein et al.			
PP	AE	2005/0922922					
PP	AF	4,918,437	4-17-90	Jasinski et al.			
PP	AG	5,023,889	6-11-91	Divsalar et al.			
PP	AH	5,063,452	11-5-91	Higurashi			
PP	AI	5,124,852	6-23-92	Suwa et al.			
PP	AJ	5,136,380	8-4-92	Cho			
PP	AK	5,146,335	9-8-92	Kim et al.			
PP	AL	5,148,422	9-15-92	Sako et al.			
PP	AM	5,218,436	6-8-93	Sugiyama et al.			
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		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO
PP	AN	2627574	7-21-04	CN			
PP	AO	1529838	5-11-05	EP			abstract
PP	AP	1499725	5-26-04	CN			only abstract
PP	AQ	2004-159207	6-3-04	JP			corresponds to AP
PP	AR	1528854	5-11-05	EP			only abstract
PP	AS	52118	12-16-02	UA			only abstract
PP	AT	1569334	1-26-05	CN			x
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## INFORMATION DISCLOSURE STATEMENT

FORM PTO 1449 (modified)

U.S. DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICELIST OF REFERENCES CITED BY APPLICANT(S)  
(Use several sheets if necessary)

Date Submitted to PTO: February 7, 2007

ATTY DOCKET NO.  
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10/695,780

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APPLICANT  
Mitsuaki OSHIMAFILING DATE  
October 30, 2003GROUP  
2634

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## U.S. PATENT DOCUMENTS

*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
PP	AA	4,267,592	5-12-81	Craiglow			
PP	AB	4,601,045	7-15-86	Lubarsky			
PP	AC	4,912,706	3-27-90	Eisenberg et al.			
PP	AD	4,914,655	4-3-90	Johannes et al.			
PP	AE	5,018,198	5-21-91	Takahashi			
PP	AF	4,003,002	1-11-77	Snijders et al.			
PP	AG	4,053,713	10-11-77	Nitadori			
	AH						
	AI						

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO
PP	AJ	3-13145	1-22-91	Japan			abstract
PP	AK	4-322592	11-12-92	Japan			abstract
PP	AL	63-253738	10-20-88	Japan			abstract
PP	AM	62-502932	11-19-87	Japan			abstract
PP	AN	58-107740	6-27-83	Japan			abstract

## OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)

	AO	
	AP	
	AQ	

EXAMINER

Phuong Phun

DATE CONSIDERED

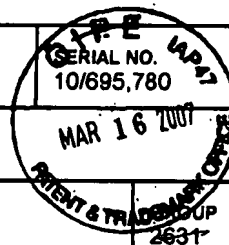
9/11/07

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FORM PTO 1449 (modified)

U.S. DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICELIST OF REFERENCES CITED BY APPLICANT(S)  
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October 30, 2003

## U.S. PATENT DOCUMENTS

*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
PP	AA	5,210,770	5-11-93	Rice			
PP	AB	5,519,730	5-21-96	Jasper et al.			
	AC						
	AD						
	AE						
	AF						
	AG						
	AH						
	AI						

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO
	AJ						
	AK						
	AL						
	AM						
	AN						

## OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)

	AO	
	AP	
	AQ	

EXAMINER

Pherry Phun

DATE CONSIDERED

9/11/07

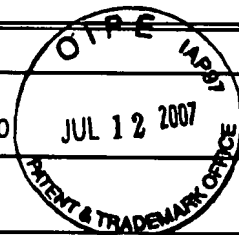
\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

## INFORMATION DISCLOSURE STATEMENT

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2611

## U.S. PATENT DOCUMENTS

*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
PP	AA	4,882,725	11-21-89	Noda et al.			
PP	AB	4,985,769	1-15-91	Yasumoto et al.			
PP	AC	5,276,507	1-4-94	Uwabata et al.			
	AD						
	AE						
	AF						
	AG						
	AH						
	AI						

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO
PP	AJ	60-24753	2-7-85	Japan			partial & abstract
PP	AK	2-278940	11-15-90	Japan			partial & abstract
	AL						
	AM						
	AN						

## OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)

	AO	
	AP	
	AQ	

EXAMINER

Phung Phun

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